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Dr. Dearborn and I carefully skinned, but the skin spoiled owing to our labors at Lake Valencia being ended by an unexpected event.

When we reached land after the hunt was over, we learned that La Guayra had been rigidly quarantined because of the appearance of bubonic plague in that port. The closing of Puerto Cabello, our only other means of egress from Venezuela, might follow at any moment, and we were advised to leave the country while we still had a chance. Accordingly we left by the first train the next day and were in Puerto Cabello that night. The journey was thru picturesque mountainous country, much of it being barren and sun-baked. The next day, by the rarest chance, I got an excursion boat sailing to Curacao, an island of the Dutch West Indies, while Dr. Dearborn pursued his labors a short time longer in Venezuela and took the first available steamer to New York.

*Field Museum of Natural History, Chicago, Illinois.*

### THREE VIREOS: NESTING NOTES FROM THE HUACHUCA MOUNTAINS

By F. C. WILLARD

WITH THREE PHOTOS BY THE AUTHOR

ONE of the most interesting families of birds as home builders is that of the Vireos. Three representatives of this family nest in the Huachuca Mountains, the Plumbeous (*Lanivireo s. plumbeus*), Stephens (*Vireo h. stephensi*), and Western Warbling (*Vireosylva g. swainsoni*), named in the order of their abundance. It was my good fortune to make a rather intimate acquaintance with all three of these species during the season of 1908.

The Plumbeous largely outnumbered the other two. It is rarely found below an altitude of 6000 feet on the east slope and 4000 feet on the west, nesting from its lowest range to the summit where I have found nests at an altitude of over 9000 feet. Every canyon has a numerous line of the Plumbeous Vireo along its bottom with scattering pairs in all the small side canyons and on the ridges. The nests are usually close to the ground, frequently within reaching distance. Oaks, ash, maples and sycamores are selected as nesting sites. Each pair has its claim staked out and ejects all intruders of the same species, altho the other two species are unmolested by Plumbeus even when nesting in close proximity.

In nest building they go as far as a quarter of a mile for material. They feed closer to the nest, however, probably at not over half this distance. The female does all the nest-building but is assisted somewhat by the male in the duties of incubation. He also feeds his mate on the nest, but this is done rather infrequently. My present observations give the time at intervals of from twenty minutes to half an hour. When doing so he sings close by the nest after feeding her and this has helped me locate several. The male also sings when the nest is approached, and once this year I saw one sitting on the nest and singing. Toward evening the male frequently flies down close to the nest and sits within a few inches of it for long periods, being perfectly quiet and motionless all the time.

The nest is a very pretty cup-shaped affair as is usual with this family. It is composed of grass-tops woven into a frame work and filled in with oak down and greenish colored oak blossoms and bits of spiders web. The lining is of fine grass tops from which all the seeds have been removed. The general appearance of a

normal nest is greenish in color. One nest built in a sycamore was made entirely of white goat hair and fine grass. The hair hung down some inches in a fringe all over and made a handsome ornament. Being compelled to leave before the eggs were laid, I did not collect it.

Both parents are very brave when on the nest, the male more so than the female. A nest was found May 31, 1907. It was forty feet up in a maple, one of the few instances where the nest was placed well up from the ground. The female sat close as I worked with my rope trying to get within reach. Just as I was about to reach the nest the male flew down and the female relinquished her guard to him. He pecked my finger as I reached out, and settled down close into the nest. I poked him but he refused to leave and sat with mouth wide open ready to repel the invader. I tried slipping my finger under him but he did not budge. Then I took him by both sides of his open beak and lifted but he hung onto the bottom of



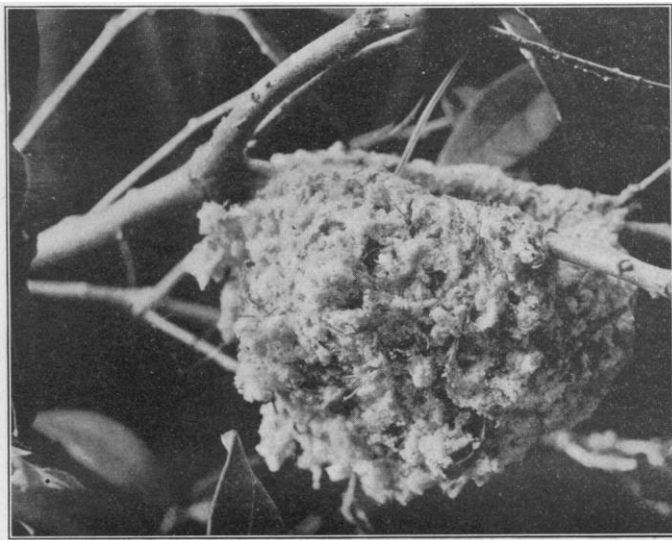
NEST OF THE PLUMBEOUS VIREO

the nest with his feet. Nonplused, I desisted for a few moments, debating how to get a view of the contents of the nest. While doing this he decided that he had done enough, hopped off, and flew into a neighboring tree. He deserved his treasures, so after one peep at the three eggs, I untied my ropes and descended.

On May 23, 1907, while ascending Ramsay Canyon in company with Mr. W. A. Johnson I stopped at a place where a Plumbeous was nearly always heard, but all was silent. I was about to move on when a couple of Long-crested Jays flew by into a clump of maples. Almost instantly the war-cry of the Vireos arose and, on hurrying to the spot, both birds were found fighting the Jays which soon took refuge in flight. A minute later, the female flew down into a small oak and hopped onto her nest which hung in plain sight some twelve feet from the ground and close to the trail. I was up that tree in a hurry and reached toward the nest, which she left at once. I could feel a nest full of eggs so began transferring them to my

mouth. There were still two eggs in the nest when I reached for the fourth. After placing it with its three counterparts I reached for the fifth supposing it would be a cowbird's. What a surprise and delight it was to bring forth another Vireo's egg. Five fresh eggs and such beauties. This was my first set of Plumbeous and the only one of five I have seen. Four is the usual number tho three eggs are not unusual. The proportion varies with the different years. I have not been in the field late enough to make any observations in connection with the young.

With the Stephens Vireo it is different as my observations always began with families of fullfledged young, and until this season, ended there, too. In speaking of Stephens Vireo the first thought is always of their song, if it can be dignified by such a name. It is like the mewling of a very small and lonely kitten repeated with even more energy, frequency and persistence. At times the "me-ow" is made more heart-rending, like a kitten in distress, the interval being slightly longer but the "me-ow" more drawn out and fuller in volume. The male will keep this up for minutes at a time, never pausing for breath. One was so persistent I timed him.



NEST OF THE STEPHENS VIREO

This series lasted thirteen and one-half minutes at the rate of one every second. This seems incredible but was actually timed by a watch. He sat still on the top of a madrone tree most of the time. The cadence scarcely varied at all. Twice he hopped to another perch but did not let the movement interrupt his song. The female does not have the same note but is restricted to the usual scolding note of the Vireos and a peculiar chirp which I am unable to describe and which she shares in common with the male. This last note was heard only around the nest or when feeding the young. The first brood of young is frequently flying by the 10th of May and they are fed by the parents until so well grown that it is impossible to tell them apart. The usual number of young seen at this time is three, tho once or twice I have counted four juveniles in one group.

On May 21, 1908, I was seated on a steep mountain side watching a Grace Warbler. There were a few large pine trees, some red oaks, and a scattering growth of oak brush, one clump of this being about thirty feet below me. A pair of Stephens Vireos flew into this and the female began arranging some nesting

material. Not enough had yet been placed to show up. The Grace Warbler was immediately forgotten in view of the more engaging prospects. The female was evidently using some cobweb. After it was placed to her satisfaction the male took a turn at re-arranging it. During all the time I watched him he did this and several times he brought material which he invariably dropped, none of it ever finding its way into the nest. On June 5 the female was sitting. She did not leave the nest until touched. The four eggs were slightly incubated. In size they compare very closely with the Western Warbling Vireo. They are considerably smaller than those of the Plumbeous. The spots are rather large, some larger than a pin head. They are not as black as the spots on either Western Warbling or Plumbeous, rather, a sienna brown.

The nest is a wonderful piece of bird architecture. It is composed of a framework of fine grass holding together a thick mat of oak down almost as compact as



NEST OF THE WESTERN WARBLING VIREO

felt. The prongs of the fork are entirely covered with the down held on by cobwebs. There is a scanty lining of fine grass tops. As is the case with the Plumbeous, the seeds are all removed from the grass tops used in the lining. The nest has a yellowish appearance.

On May 22 another bird was seen building, the nest being almost completed, apparently. June 3rd no bird was around and June 12th, when I again visited it, the nest had entirely disappeared. Not a vestige was left. I climbed up to examine the fork where it had been and it was cleaned off completely. I feel sure they had moved the nest to some oak bush near by, but I could not locate it. Both these nests were about twelve feet from the ground, near the top of the same kind of oak brush.

On June 10th an intruding Jay helped me locate a nest with three well-feath-

ered young. This nest was in Carr Canyon and was placed at the top of a black oak sapling growing out of the side of the canyon. The nest was fifteen feet from the ground and seventy-five from the bed of the canyon which is very deep with precipitous walls. The male came with a caterpillar but seeing me would not go to the nest. The female, however, fed the young and brooded them without paying much attention to me.

The least common of the three Vireos breeding in the Huachuca Mountains is the Western Warbling Vireo. I have located but four pairs after visiting all the principal canyons, but there may be others in some of the smaller canyons. One pair is near the reservoir in Miller Canyon. I spent two hours on June 4, 1907, looking for their nest, climbing all the likely looking trees. The male got very uneasy at my continued presence and finally called his mate off the nest. She began calling with the usual Vireo alarm note and after locating her I watched very carefully for about ten minutes till she flew onto the nest, thirty feet up in a sycamore standing nearby on the edge of the creek. The nest was invisible from the ground and was well sheltered with leaves above. The female left the nest as I climbed up. There were four eggs with incubation begun. I secured good photographs of this nest and eggs.

On May 21, 1908, I was fortunate enough to locate a nest just begun. The two birds were together in the tree tops nearby all the time. The male was singing most of the time, the female responding from time to time with low notes which I cannot find syllables to describe. They were difficult to follow from tree to tree and it was sometime before I could tell where they were building. On June 1st the nest contained two eggs and June 4 I collected the nest and four eggs, taking photographs of them. The nest was placed in a fork near the top of a small ash growing well up from the bed of the canyon. The nest has the framework of grass tops like the two preceding species but the interwoven material is mostly a white parchment-like substance from the seed pods of the mescal. Bits of cobwebs complete the outside which is rather ragged in appearance and of a grayish white color. The lining is fine grass tops with the seeds removed as is the case with the other two.

The average measurements of the nests of the three species as shown by specimens in my possession are as follows:

Plumbeous Vireo: diameter, outside  $3\frac{3}{4}$  inches; inside  $2\frac{1}{4}$  inches.

Stephens Vireo: diameter, outside,  $2\frac{3}{4}$  inches; inside  $1\frac{1}{2}$  inches.

Western Warbling Vireo: diameter, outside  $3\frac{3}{4}$  inches; inside 2 inches.

Plumbeous Vireo: depth, outside  $2\frac{1}{2}$  inches; inside  $1\frac{3}{4}$  inches.

Stephens Vireo: depth, outside  $2\frac{1}{2}$  inches; inside  $1\frac{3}{4}$  inches.

Western Warbling Vireo: depth, outside 2 inches; inside  $1\frac{1}{2}$  inches.

*Tombstone, Arizona.*

## NESTING OF THE PINE SISKIN AT GREAT SLAVE LAKE

By RUDOPH M. ANDERSON

THE Pine Siskin (*Spinus pinus*) appears to be a rather rare bird in the territory along the Athabasca, Slave and Mackenzie rivers. At least the writer met with the species on only one occasion during the season of 1908. On the morning of June 24, our party, on one of six scows and a York-boat, towed by the little steaming "Eva," pulled out of the delta of the Slave River, intending to cross the end of the lake to Hay River. A fairly strong wind was blowing from across the lake, causing heavy waves over the mud flats outside the mouth of the river,